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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,961	09/10/2003	Ted Liang	042390P11354D	5883

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EXAMINER

STEVENSON, ANDRE C

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/659,961	Applicant(s) LIANG ET AL.	
	Examiner Andre' C. Stevenson	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-16 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some \* c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) \_\_\_\_.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

### Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)                      18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 20) ☐ Other: \_\_\_\_\_.

## Detail Action

### DETAILED ACTION

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13 through 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Dao et al (U.S. Pat. No.6548417 B2), and further in view of Nagamura et al (U.S. Pat. No.63440543 B1).

Dao et al (U.S. Pat. No.6548417 B2), for **Claim #13**, A method comprising: providing a substrate; forming a layer over said substrate; patterning said layer into a first region and a second region; removing said layer in said first region; inspecting said first region for an opaque defect; forming a reactant gas over said opaque defect; and directing electrons toward said opaque defect, said electrons including said reactant gas to etch said opaque defect, (**Abstract, Column 3, lines 39 through 54, Column 5, lines 17 through 28, Column 4, lines 12 through 21, Column 3, lines 55 through 63**).

Dao et al (U.S. Pat. No.6548417 B2) discloses the claimed invention except for the forming a reactant gas over said opaque defect; and directing electrons toward said opaque defect, said electrons including said reactant gas to etch said opaque defect. Ref. B teaches that it is known to forming a reactant gas over said opaque defect; and directing electrons toward said opaque defect, said electrons including said reactant gas to etch said opaque defect.

Considering now, **Claim #13**, a method comprising: providing a substrate; forming a mirror over said substrate; forming a buffer layer over said mirror; forming an absorber layer over said buffer layer; patterning said absorber layer into a first region and a second region; removing said absorber layer in said first region; inspecting said first region for an opaque defect; dispensing a reactant gas over said opaque defect, is linear scanning an electron beam over said opaque defect, said electron beam inducing said reactant gas to react with said opaque defect to form a volatile by product; and removing said buffer layer in said first region, is taught by Nagamura et al (U.S. Pat. No.63440543 B1) (Column 23, lines 9 through 34, lines 49 through 67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to forming a reactant gas over said opaque defect; and directing electrons toward said opaque defect, said electrons including said reactant gas to etch said opaque defect as taught by Nagamura et al (U.S. Pat. No.63440543 B1), since Nagamura et al (U.S. Pat. No.63440543 B1) states at Column 23, lines 9 through 34,

lines 49 through 67 that such a modification would allow repairing of opaque extension defect with ion beam etching.

With respect to **Claim #14**, a method of claim 13 wherein said reactant gas etches said opaque defect without damage to said substrate, is taught by Dao et al (U.S. Pat. No.6548417 B2) (Column 3, lines 55 through 63). Also, wherein said reactant gas etches said opaque defect without damage to said substrate is taught by Nagamura et al (U.S. Pat. No.63440543 B1) (Column 12, lines 46 through 67, Column 13, lines 1 through 20).

Furthermore, **Claim #15**, a method of claim 13 wherein said opaque defect comprises chrome and said reactant gas comprises chlorine and oxygen, is taught by Dao et al (U.S. Pat. No.6548417 B2) (Column 3, lines 55 through 63, line 28 through 39).

Considering now, **Claim #16**, a method comprising: providing a substrate; forming a mirror over said substrate; forming a buffer layer over said mirror; forming an absorber layer over said buffer layer; patterning said absorber layer into a first region and a second region; removing said absorber layer in said first region; inspecting said first region for an opaque defect; dispensing a reactant gas over said opaque defect, is linear scanning an electron beam over said opaque defect, said electron beam inducing

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said reactant gas to react with said opaque defect to form a volatile by product; and removing said buffer layer in said first region, is taught by Dao et al (U.S. Pat.

No.6548417 B2) (**Abstract, Column 3, lines 38 through 54, Column 5, lines 17 through 28, Column 4, lines 12 through 21, Column 3, lines 55 through 63, Column 3, lines 8 through 15, Column 6, lines 55 through 67, Column 7, lines 1 through 11).**

## **Objected Claims**

Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims #17

- ✓ Reactant gas comprises Xenon Fluoride ( $\text{XeF}_2$ )

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (703) 308 6227. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on (703) 308 3325. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956. Also, the proceeding numbers can be used to fax information through the Right Fax system;

**(703) 872-9306**

Andre' Stevenson

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01/27/04

  
**John F. Niebling**  
**Supervisory Patent Examiner**  
**Technology Center 2800**